

## AMENDMENT

**Amendments to the Claims:** Please replace all prior versions and listings of claims with the following listing of claims.

### LISTING OF CLAIMS:

1. (Currently Amended) A method for reactive and deliberative managing a network service associated with a service level management domain to provide service level management, wherein the network service supports one or more business processes under service level management, the method comprising:

providing a service over a network having a plurality of network components that support the service, wherein performance of the service depends on performances of the plurality of network components that support the service, and wherein the service has a state that represents whether the performance of the service meets or exceeds a service level identified in a service level agreement;

extracting one or more component parameter values from the monitoring operational characteristics of a plurality of devices coupled to a network components that using a plurality of sensors, wherein the plurality of devices support the network service associated with the service level management domain, wherein the using a plurality of sensors respectively coupled to the plurality of network components that support the service;

monitoring the component parameter values extracted from the plurality of network components that support the service using a plurality of monitoring agents, wherein each of the plurality of monitoring agents are configured to monitor a subset of the extracted component parameter values in a respective domain of a plurality of domains of the network, detect one or more intra-domain events in response to a change in the respective domain as a function operational characteristics of the component parameter values monitored in the respective domain, and generate one or more intra-domain alarms in the respective domain as a function of the plurality of devices; intra-domain mapping the events detected in into one or more alarms using a plurality of monitoring agents, wherein the plurality of monitoring agents

~~are configured to receive the events from the plurality of sensors and perform event correlation to map the events into the alarms~~ respective domain;

~~correlating analyzing the intra-domain alarms generated in each of the plurality of domains of the network to produce one or more correlated alarms using an alarm correlation agent, wherein the alarm correlation agent is configured to receive correlate the intra-domain alarms to generate one or more inter-domain from the plurality of monitoring agents and perform alarm correlation on the received alarms to produce across the correlated alarms plurality of domains of the network; and~~

~~analyzing causes of the correlated intra-domain alarms and the inter-domain alarms across the network using an enterprise management system, wherein the intra-domain alarms and the correlated inter-domain alarms are indicative indicate one or more of a degradation or a potential degradation in [[a]] the performance of the service relative to level associated with the network service or a potential degradation in the service level associated with identified in the network service level agreement.~~

2. (Cancelled)

3. (Currently Amended) The method of claim 1, further comprising:

~~mapping determining a state of the inter-domain alarms generated across business processes under service level management based on the monitored operational characteristics of the plurality of domains of devices, wherein the network to service level is determined as a service parameter that represents the state function of the monitored operational characteristics service, and wherein the service parameter has a value that indicates whether the performance of the service meets or exceeds the service level affects the state of identified in the business process under service level management agreement; and~~

~~displaying information relating to the network service associated with the service level management domain, wherein the displayed information relates to includes at least one of availability, faults, configuration, integrity, security, reliability, performance, or the service level associated with the network service.~~

4. (Cancelled)

5. (Currently Amended) The method of claim [[4]] 1, wherein analyzing the causes of the intra-domain alarms and value for the inter-domain alarms includes executing one or more data mining algorithms that discover respective relationships between the service parameter is determined using a component to service parameter mapping function parameter values and each of the intra-domain alarms and the inter-domain alarms.

6. (Currently Amended) The method of claim [[5]] 3, further comprising[[:]]  
~~comparing the value for the service parameter with a predetermined service level identified in a service level management agreement; and~~  
determining that the state of the service satisfies the service level management agreement is satisfied if in response to the value for the service parameter meets meeting or exceeding exceeds the predetermined service level identified in the service level management agreement.

7-22. (Cancelled)

23. (Currently Amended) A method for reactive and deliberative monitoring a business process under service level management, wherein at least one service associated with a service level management domain supports the business process, the service having a state expressed as a range of numeric values representing a grade of the service, the method comprising:

providing a service over a network having a plurality of network components that support the service, wherein performance of the service depends on performances of the plurality of network components that support the service, and wherein the service has a state expressed as a range of numeric values that represent whether the performance of the service meets or exceeds a service level identified in a service level agreement;

extracting collecting operational data for one or more component parameter values

~~from resources coupled to a network, wherein the one or more resources~~ plurality of network components that support the at least one service using a plurality of sensors respectively coupled to associated with the plurality of network components that support service level management domain, the one or more resources performing one or more functions on the network to provide the service supporting the business process under service level management;

~~monitoring one or more the component parameters~~ parameter values extracted from the operational data collected for plurality of network components that support the one or more resources service using a plurality of monitoring agents, wherein the plurality of monitoring agents are configured to detect one or more events as a function component parameters represent operational characteristics of the monitored component parameter values and generate resources supporting the at least one service provided or more intra-domain alarms as a function of the detected events;

correlating the intra-domain alarms generated by the plurality of monitoring agents using an alarm correlation agent, wherein the alarm correlation agent is configured to correlate the intra-domain alarms to generate one or more inter-domain alarms across a plurality of domains of the network;

~~determining the state of the service from the one or more component parameters, wherein determining the state of the service includes mapping values of the~~ inter-domain alarms generated across the plurality of domains of the network one or more component parameters to a numeric value in the range of numeric values used to express service parameter that represents the state of the service, wherein the service parameter has a numeric value in the range of numeric values that indicates whether provides a performance index representing the grade performance of the service meets or exceeds associated with the service level management domain identified in the service level agreement; and

~~monitoring the numeric value that expresses the state of the service~~ parameter using an enterprise management system to provide service level management for the business process service provided over the network.

24. (Currently Amended) The method of claim 23, ~~further comprising~~ wherein providing service level management for the service provided over the network includes determining [[a]] that the state of the service satisfies the business process under service level management from agreement in response to the numeric value that expresses the state of the service parameter meeting or exceeding the service level identified in the service level agreement.

25. (Currently Amended) The method of claim 23, ~~wherein providing further comprising:~~  
~~determining an acceptable service level management for the service, wherein provided over the network includes determining that acceptable service level is identified in a service level agreement associated with the business process; and~~  
~~comparing the numeric value that expresses the state of the service satisfies [[to]] the acceptable service level agreement identified in response to the numeric value of the service parameter meeting or exceeding the service level agreement to determine whether identified in the service level agreement associated with the business process is satisfied.~~

26. (Cancelled)

27. (Currently Amended) ~~The [[A]] method for providing an entity with service level management of a business process claim 23, the method further comprising the steps of:~~

~~determining at least one service that supports the business process, the at least one service associated with a service level management domain and having a state expressed as a range of numeric values representing a grade of the service;~~

~~collecting operational data for one or more resources coupled to a network, wherein the one or more resources support the at least one service associated with the service level management domain, the one or more resources performing one or more functions on the network to provide the service supporting the business process under service level management for the entity;~~

~~monitoring one or more component parameters from the operational data collected for the one or more resources, wherein the one or more component parameters represent~~

~~operational characteristics of the resources supporting the at least one service provided;~~

~~determining that the state of the service from the one or more component parameters, wherein determining the state of the service includes mapping values of the one or more component parameters to a numeric value in the range of numeric values used to express the state of the service, wherein the numeric value in the range of numeric values provides a performance index representing the grade of the service parameter associated with the service level management domain, wherein the numeric value indicates one or more of an acceptable state of the service a degradation, an unacceptable state of the service a potential degradation, or an imminent change from degradation in the performance of acceptable state to the service relative to unacceptable state of the service level identified in the service level agreement; and~~

~~issuing one or more instructions that ~~taking an action to~~ effect a change to one or more of the ~~monitored~~ component parameters parameter values in response to determining that the numeric value of the service parameter indicates any of ~~indicating either the unacceptable state of the service degradation, the potential degradation, or the imminent change to degradation in the unacceptable state performance of the service relative to the service level identified in the service level agreement, wherein the action includes~~ issuing one or more instructions autonomously cause the numeric value of the service parameter to meet control one or more of exceed the service level identified in resources coupled to the network service level agreement.~~

28. (Currently Amended) The method of claim ~~[[6]]~~ 3, further comprising determining that the state of the service does not satisfy the service level management agreement is not satisfied if in response to the value for the service parameter ~~does not meet meeting or exceeding exceed~~ than the ~~predetermined~~ service level identified in the service level management agreement.

29. (Currently Amended) The method of claim 1, wherein each of the plurality of sensors monitoring agents are further configured to detect the one or more intra-domain events based on one or more policies and rules associated with the ~~network~~ service.

30. (Currently Amended) The method of claim 29, wherein each of the plurality of monitoring agents are further configured to ~~perform~~ generate the event correlation one or more intra-domain alarms based on the one or more policies and rules associated with the ~~network~~ service.

31. (Currently Amended) The method of claim 30, wherein the alarm correlation agent is further configured to ~~perform~~ generate the alarm correlation one or more inter-domain alarms based on the one or more policies and rules associated with the ~~network~~ service.

32. (Currently Amended) The method of claim ~~[[1]]~~ 5, wherein analyzing the enterprise management system is configured to identify a root cause of the one or more events to analyze the causes of the correlated intra-domain alarms and across the network inter-domain alarms further includes:

executing the one or more data mining algorithms to discover at least one of the intra-domain alarms that caused one or more of the inter-domain alarms;

executing the one or more data mining algorithms to discover at least one of the intra-domain events that caused the at least one intra-domain alarm; and

executing the one or more data mining algorithms to discover at least one of the component parameter values that caused the at least one intra-domain event.

33. (Currently Amended) The method of claim [[32]] 5, wherein the one or more data mining algorithms further ~~enterprise management system is further configured to~~ discover cause and effect relationships among the plurality of ~~devices coupled to the network components that support the service to represent~~ identify the respective relationships between root cause of the one or more events component parameter values and each of the intra-domain alarms and the inter-domain alarms.

34. (Currently Amended) The method of claim [[1]] 5, wherein the one or more data mining algorithms further ~~enterprise management system is further configured to~~ discover one or more of the ~~operational characteristics~~ component parameter values that distinguish ~~whether the a healthy state for performance of the service from an unhealthy state for~~ meets or exceeds the service level identified in ~~to analyze the causes of the correlated alarms across the network~~ service level agreement.

35-36. (Cancelled)

37. (New) A system for reactive and deliberative service level management, comprising:

a network having a plurality of network components that support a service provided over the network, wherein performance of the service depends upon performances of the plurality of network components that support the service, and wherein the service has a state that represents whether the performance of the service meets or exceeds a service level identified in a service level agreement;

a plurality of sensors respectively coupled to the plurality of network components that support the service, wherein the plurality of sensors are configured to extract one or more component parameter values from the plurality of network components that support the service;

a plurality of monitoring agents communicatively coupled to the plurality of sensors, wherein each of the plurality of monitoring agents are configured to:



monitor a subset of the extracted component parameter values in a respective domain of a plurality of domains of the network;

detect one or more intra-domain events in the respective domain as a function of the component parameter values monitored in the respective domain; and

generate one or more intra-domain alarms in the respective domain as a function of the intra-domain events detected in the respective domain;

an alarm correlation agent configured to correlate the intra-domain alarms generated in each of the plurality of domains of the network to generate one or more inter-domain alarms across the plurality of domains of the network; and

an enterprise management system configured to analyze causes of the intra-domain alarms and the inter-domain alarms, wherein the intra-domain alarms and the inter-domain alarms indicate one or more of a degradation or a potential degradation in the performance of the service relative to the service level identified in the service level agreement.

38. (New) A system for reactive and deliberative service level management, comprising:

a network having a plurality of network components that support a service provided over the network, wherein performance of the service depends upon performances of the plurality of network components that support the service, and wherein the service has a state expressed as a range of numeric values that represent whether the performance of the service meets or exceeds a service level identified in a service level agreement;

a plurality of sensors respectively coupled to the plurality of network components that support the service, wherein the plurality of sensors are configured to extract one or more component parameter values from the plurality of network components that support the service;

a plurality of monitoring agents communicatively coupled to the plurality of sensors, wherein the plurality of monitoring agents are configured to:

detect one or more events in the respective domain as a function of the monitored component parameter values; and

generate one or more intra-domain alarms as a function of the detected events;

an alarm correlation agent configured to correlate the intra-domain alarms generated by the plurality of monitoring agents to generate one or more inter-domain alarms across a plurality of domains of the network; and

an enterprise management system configured to:

map the inter-domain alarms generated across the plurality of domains of the network to a service parameter that represents the state of the service, wherein the service parameter has a numeric value in the range of numeric values that indicates whether the performance of the service meets or exceeds the service level identified in the service level agreement; and

monitor the numeric value of the service parameter to provide service level management for the service provided over the network.